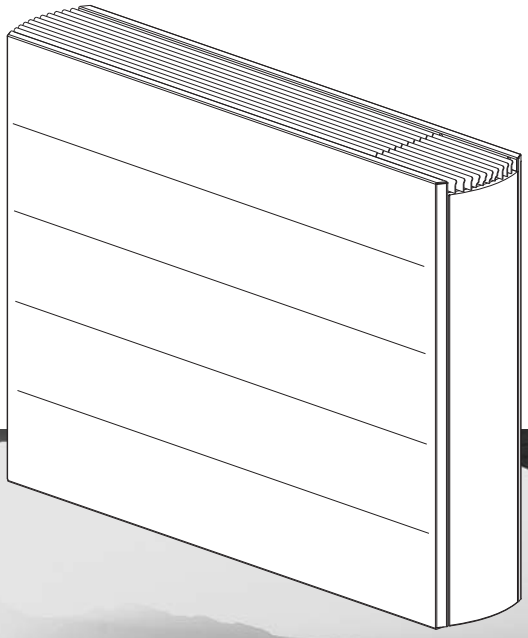
MYSON

Installation, Operating, Maintenance
and After Sales Manual.



iVECTOR Heater/Cooler
Models: iV080, iV100, iV120, iV140, iV160

Product Serial Number:

Please leave this manual with the end user.

Part Number: 1370067
Issue 1

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1.0 Introduction

This heater/cooler fan convector is designed for use on central heating systems or heating and cooling systems in homes and commercial environments. Models are available with 2 connections.

The control system provides thermostatic room temperature and fan speed control, and allows operation on a stand-alone basis, or by integration into building management systems.

The unit is fitted with a washable air filter that can be easily removed for cleaning.

A range of accessories are available for this product including control valves and condensate pumps for cooling installations.

This manual should be read carefully prior to installation and retained for future reference.

2.0 Warnings & Safety Measures

This unit MUST NOT be installed in a bathroom or other high humidity area.
This appliance must be earthed.
DO NOT cover or obstruct the air inlet or outlet grille.
Disconnect from the power supply before carrying out any maintenance work.

- Please carefully follow the instructions and guidelines contained in this manual during installation. Always perform each step in sequence.
- Inspect this product for concealed shipping damage prior to installation. If items are damaged or missing please contact your supplier.
- This fan convector must be installed by qualified engineers.
- This fan convector must not be installed immediately below a socket outlet.
- Do not install this fan convector in areas where excessive dust exists.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience or knowledge, unless they have been given supervision or instruction concerning us of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- The manufacturer accepts no liability for damage or injury caused by failure to adhere strictly to the safety precautions and instructions contained in this manual, or by negligence during the installation of the product and any accessories described in this manual.
- For the correct installation of this unit it is essential that fixing is carried out in such a way that it is suitable for intended use and predictable misuse. A number of elements need to be taken into consideration including the fixing method used to secure it to the wall, the type and condition of the wall itself, and any additional potential forces or weights that may happen to be applied to the unit, prior to finalising installation.
- Please leave this manual with the end user.

3.0 Heating System Design

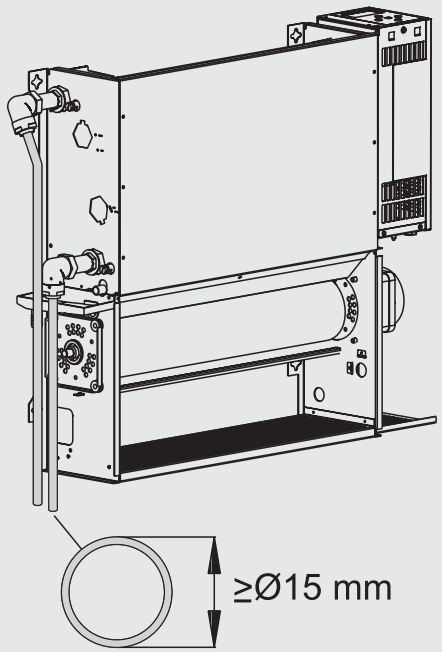
This heater/cooler should only be used on closed circulation, two pipe, pump assisited central heating systems or heating and cooling systems.

This heater/cooler fan convector is designed for wall mounted installation.

For optimum fan convector performance the system must be capable of providing sufficient flow of water through the heat exchanger at the correct temperature. This means that:

1. The unit is not suitable for use on microbore pipework.
2. This unit is not suitable for 1 pipe systems.
3. Optimum performance will require effective balancing of the whole system. Each emitter on the circuit should be checked and valves adjusted so that the required water flow rate through each unit is achieved.
4. Where the unit is fitted on to a system with other emitters a separate circuit for the fan convector should be considered in order to provide sufficient flow through the unit.
5. The system water must be above 32°C for heating mode and below 15°C in cooling mode.
6. This unit must not be used to replace a radiator in an existing heating system unless an adequate flow of water through the unit can be guaranteed.

3.0 Heating System Design (continued...)



No microbore pipework

Model	Minimum Pipe Size (mm) (2 pipe units)
iV080	15*
iV100	15**
iV120	22
iV140	22
iV160	22

* 8m max recommended pipe run. Increase pipe diameter if longer run is needed.
** 4m max recommended pipe run. Increase pipe diameter if longer run is needed.

Note: A pressure independent balancing and control valve is available for this product as an accessory. This valve can simplify system design by eliminating the possible need for larger balancing valves elsewhere in the system, and will maintain the flow in the unit to the required levels. See accessories section for more details.

4.0 Unit Selection/Sizing

Heat output performance data is given in the technical data section of this manual (see page 12). Outputs are shown for the three fan speeds, however, it is important to size the unit to match the calculated heat loss requirements of the room with the unit operating on the **normal fan speed**. The higher fan speeds are used in Comfort mode when the room temperature is significantly lower than the preset temperature.

Note: It is also possible to electronically remove the highest fan speed from the functionality of this unit via the control system (see page 16). This may be advantageous on low temperature systems to prevent cool air being blown into the room on the highest setting.

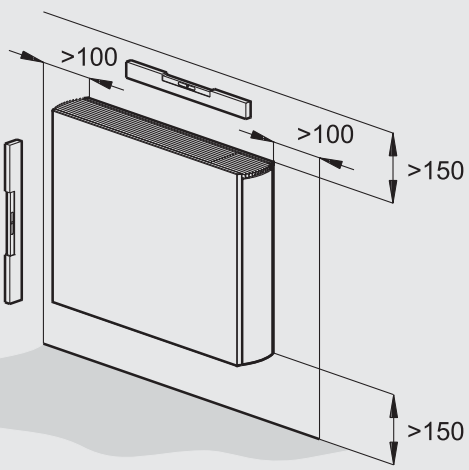
When establishing the temperature difference, ie mean water to room temperature difference, allowance should be made for the temperature drop in the system. It is the water temperature at the unit that dictates the output.

5.0 Location

This unit may be fitted to any convenient wall at a height from the floor level that suits the application, providing an unimpeded flow of air into the area to be heated/cooled.

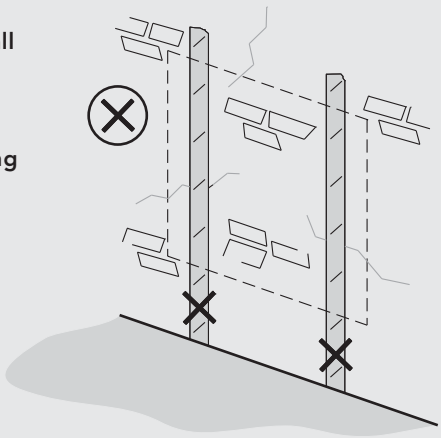
For cooling applications, the need for disposal of condensate may influence the position of the unit.

Mount on a flat wall with sufficient side clearance.



NO mounting on uneven wall surfaces

NO mounting on stud walling



6.0 Preparation

Before proceeding with the installation, remove the carton lid, unpack the contents carefully and check against the checklist below:

1. Heater Cooler unit (chassis)

2. Outer Casing

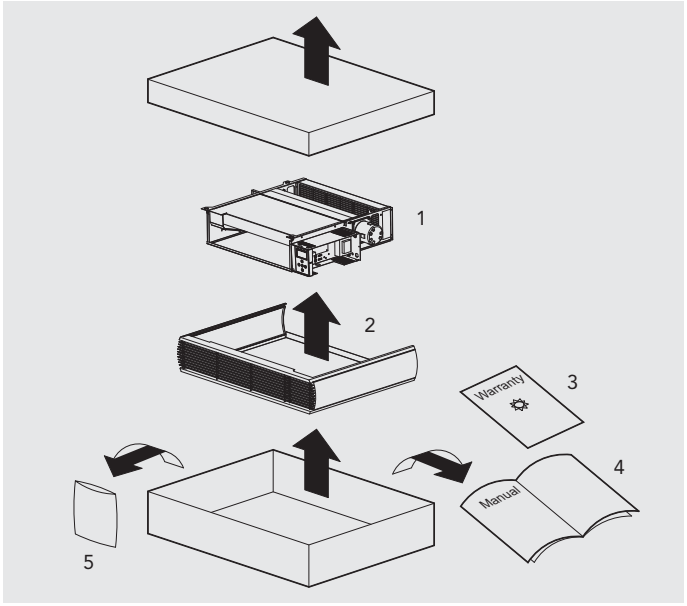
3. Warranty Card

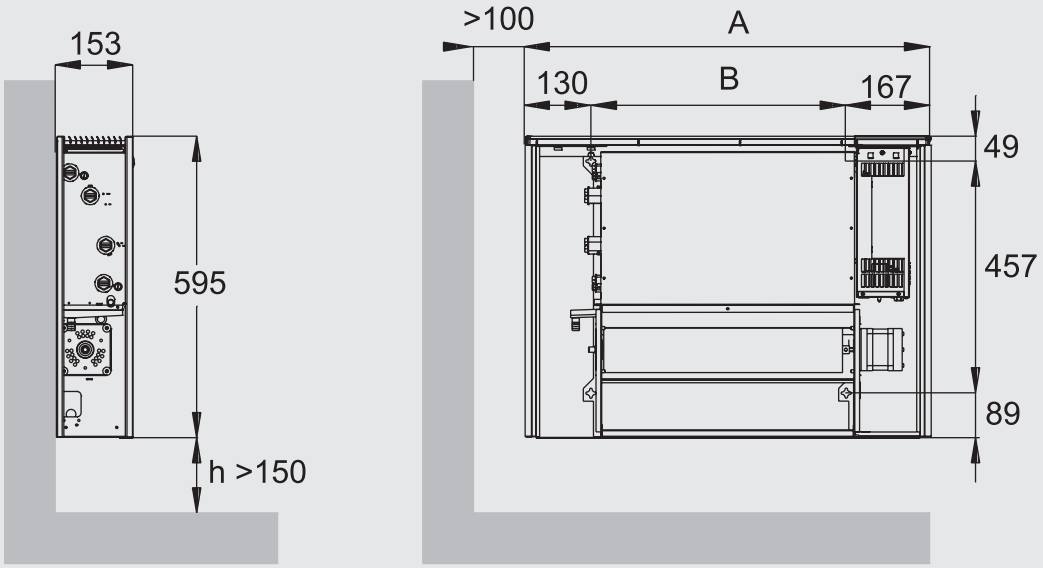
4. Instruction Manual

5. Fixing kit

Check contents for concealed shipping damage.

Tools required:

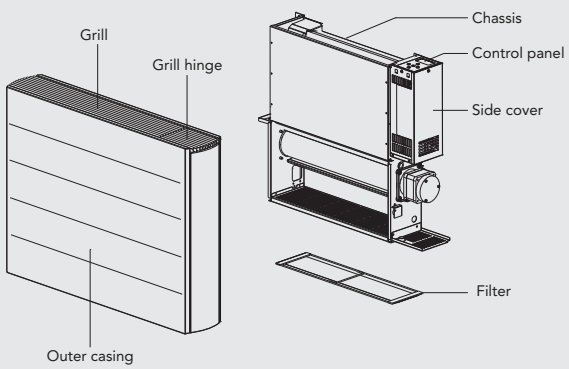




Mounting dimensions

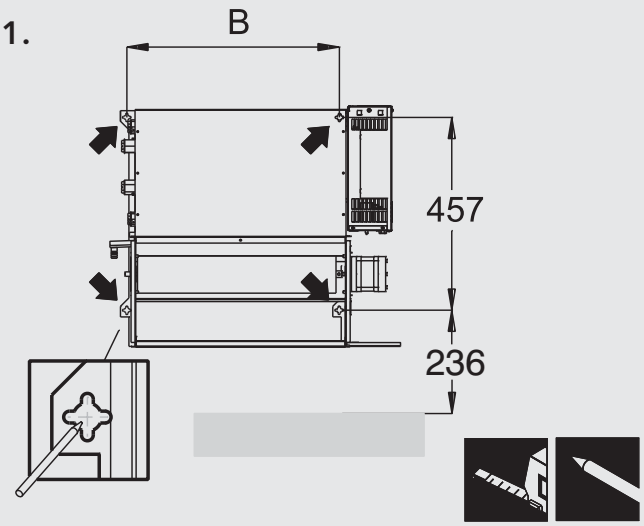
	Dimensions (mm)	
Model	A	B
iV080	800	503
iV100	1000	703
iV120	1200	903
iV140	1400	1103
iV160	1600	1303

Exploded View



7.0 Fixing

1.



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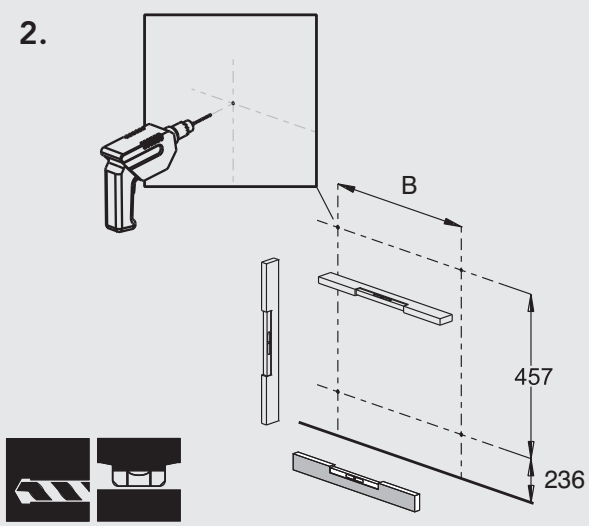

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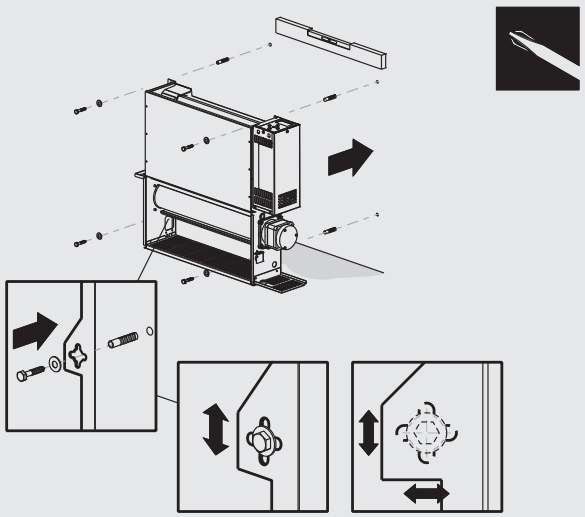

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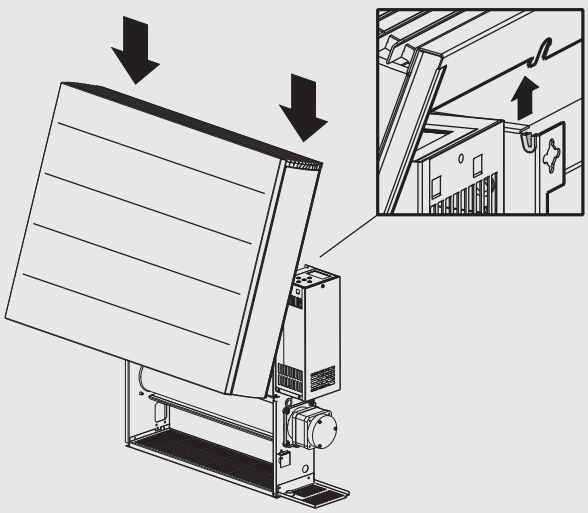
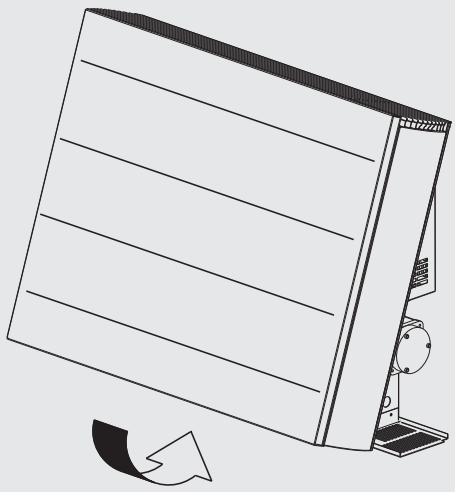


5.



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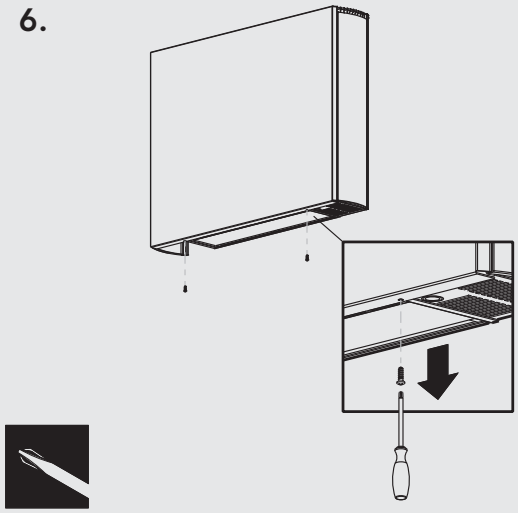


NOTE: Do not replace outer cover until connection to system and connection to electrical supply has been completed.

8.0 Water Connection

Connect the unit to the flow and return pipes. Pipe-work can be routed from the floor or through the wall at the back of the unit. (See options below). Connections are G3/4".

Connection directly onto the heat exchanger should be made using straight connectors so that the pipe-work can more easily be routed inside the unit.

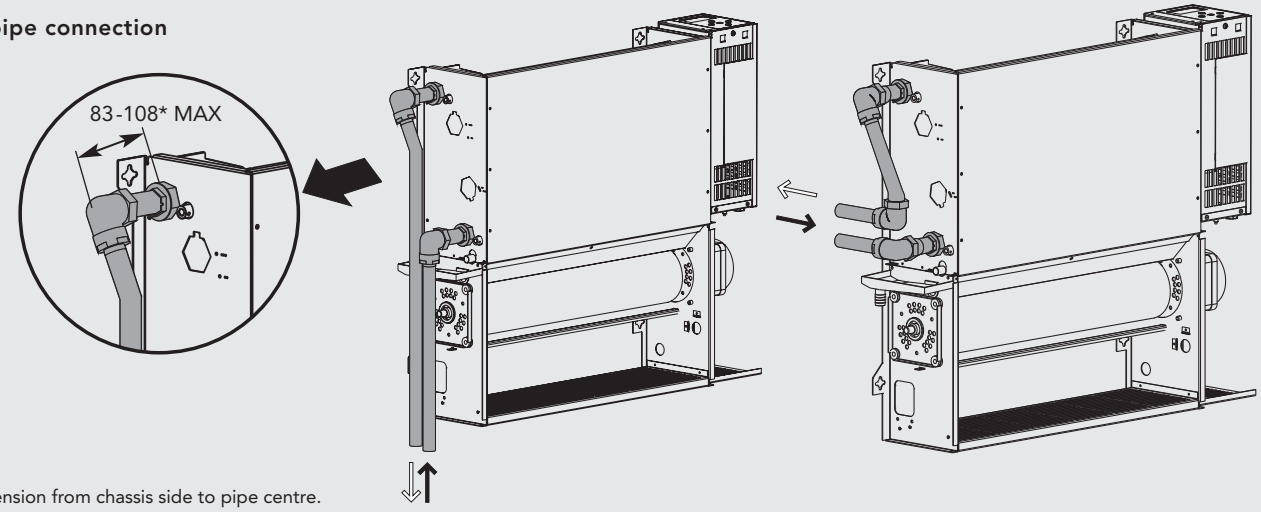
For heating only applications the condensate collector mounted on the chassis below the heat exchanger connections is not needed and can be removed by unscrewing the two bracket fixing screws. Removal of this component will aid pipe-work fitting when the pipes are routed up from the floor.

For applications involving cooling, the pipe-work must be routed to avoid the condensate collector. Connection to the heat exchanger should be made using straight connectors so that the pipe-work can more easily be routed past the condensate collector.

Before making the pipe-work connections refer to section 3.0 for advice on System Design.

Pipe Routing Options

2-pipe connection



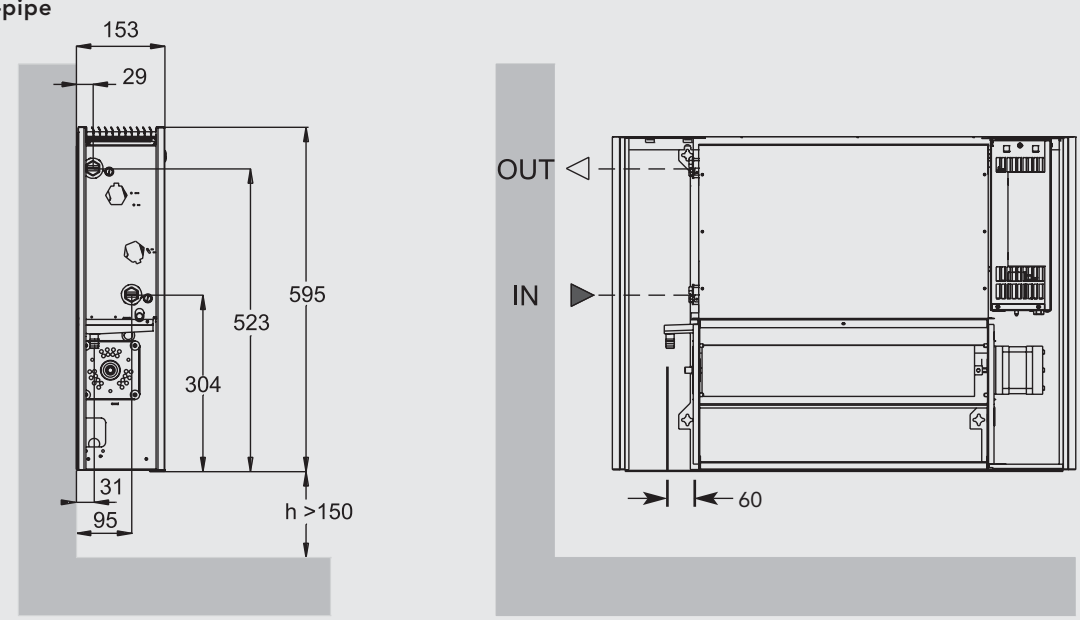
*Dimension from chassis side to pipe centre.

Note 1: The flow pipe should be connected to the bottom connection of the heat exchanger.

Note 2: Isolating valves are not supplied with this unit, but should be fitted in case of future service requirements. The type and size of valves and their location should be suitable for the application. Valves should be selected in accordance with system temperature and pressure requirements whilst taking into account pressure drop characteristics.

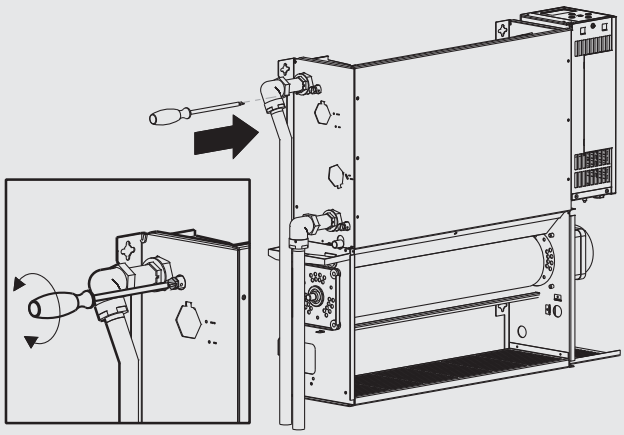
Note 3: External pipe-work carrying chilled water must be insulated. Use a suitable sealant as necessary to ensure that condensate does not spill or leak. Once connection to the system flow and return pipes is made, any exposed internal 15mm pipe-work and isolating valves must also be insulated.

Dimensions 2-pipe

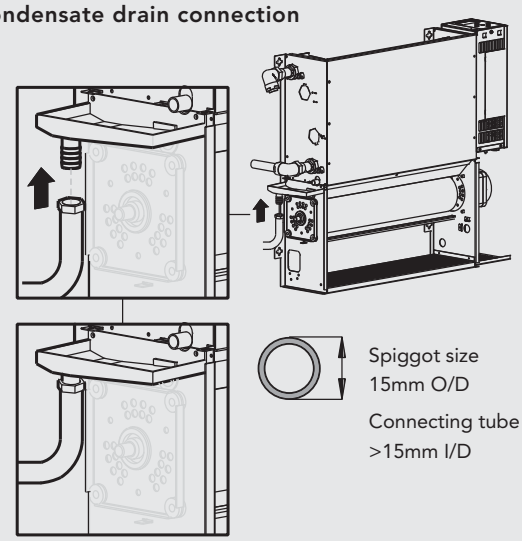


8.0 Water Connection (continued...)

How to bleed/vent



Condensate drain connection



Ensure all water fittings are secure before filling the heating system.

Fill the heating system, open the valves fully and check pipe connections for leaks and vent the heat exchanger.

Installations with chilled water will require provision for condensate disposal in accordance with any local regulations.

A drain tray is fitted for condensate collection within the unit. This should be connected to a 15mm drain pipe.

Alternatively a condensate disposal pump is available as an accessory, e.g. for use on internal walls (see Accessories page).

9.0 Electrical Connection

WARNING: This appliance must be earthed. The electrical installation must comply with local or national wiring regulations.

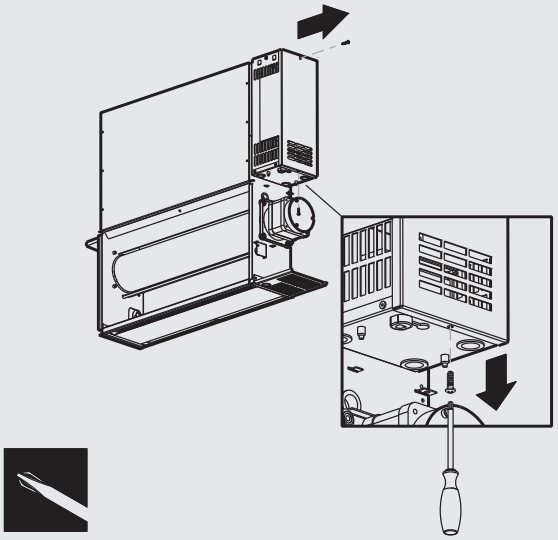
- The electrical installation of this appliance should be carried out by a qualified electrician in accordance with current regulations.
- This unit is supplied with factory fitted test leads. **Remove these and discard.**
- A fused electrical spur with a maximum 3A fuse and a switch having 3mm separation on all poles must be provided in an easily accessible position adjacent to the unit.
- Electrical cable entry to the unit should be made through the underside of the unit, into the control box on the right hand side using the cable gland provided. The supply cord must be 0.75mm² only.
- Connect the live and neutral wires to the power board terminal connections, and the earth wire to the chassis earth terminal.

For Building Management System

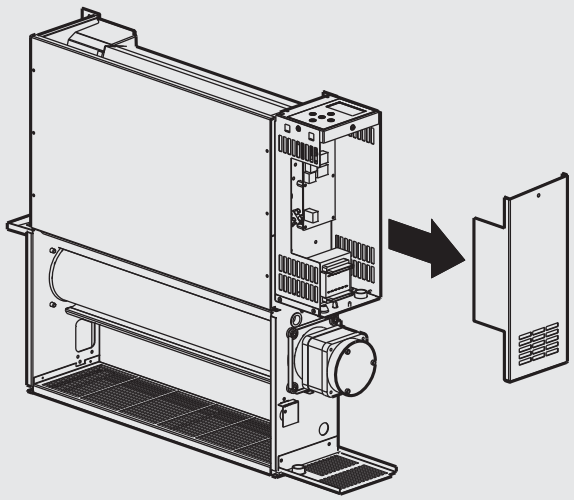
- Connect wires from BMS and valves as necessary, using the same cable routing into the control box, and with the second cable gland supplied.

9.0 Electrical Connection (continued...)

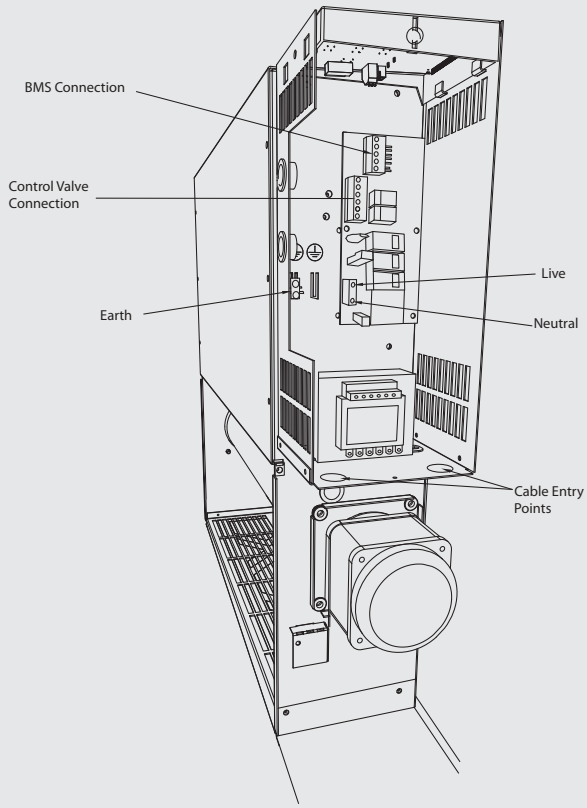
1. Remove x 2 screws to access control panel



2. Remove control panel cover



3. Routing cable

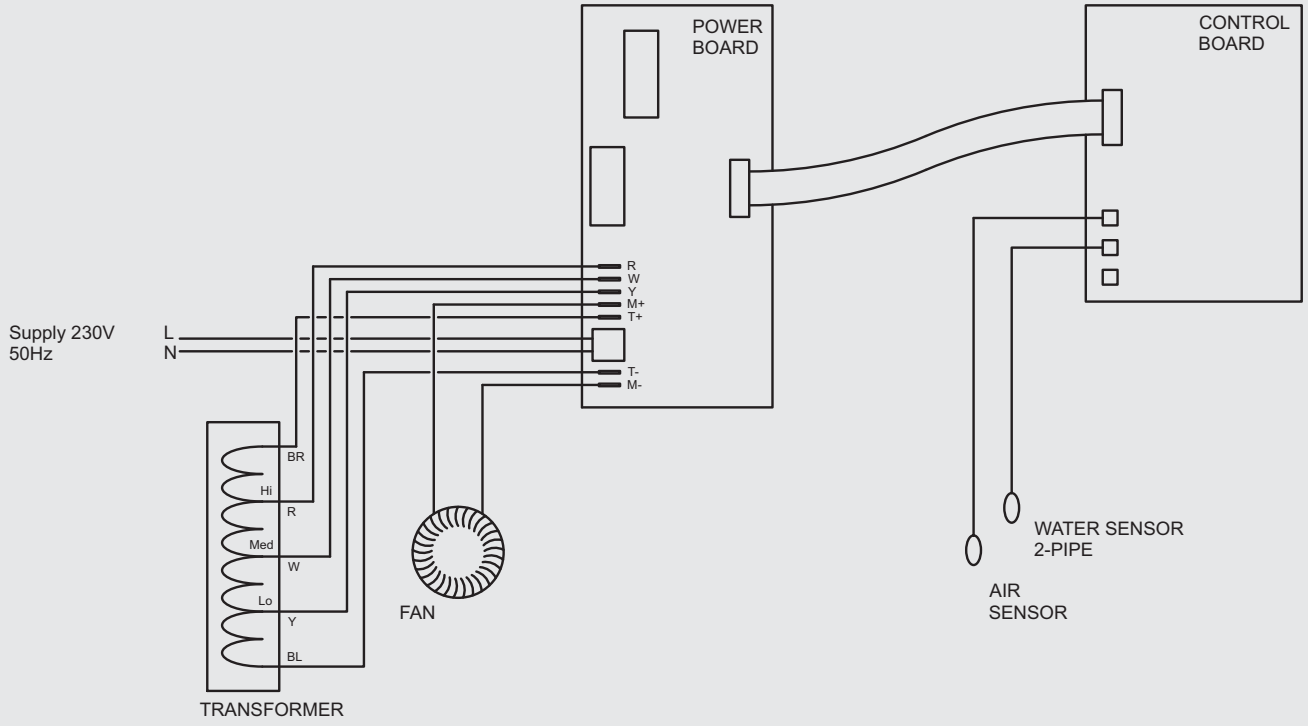


Refer to wiring diagrams on pages 10 & 11.

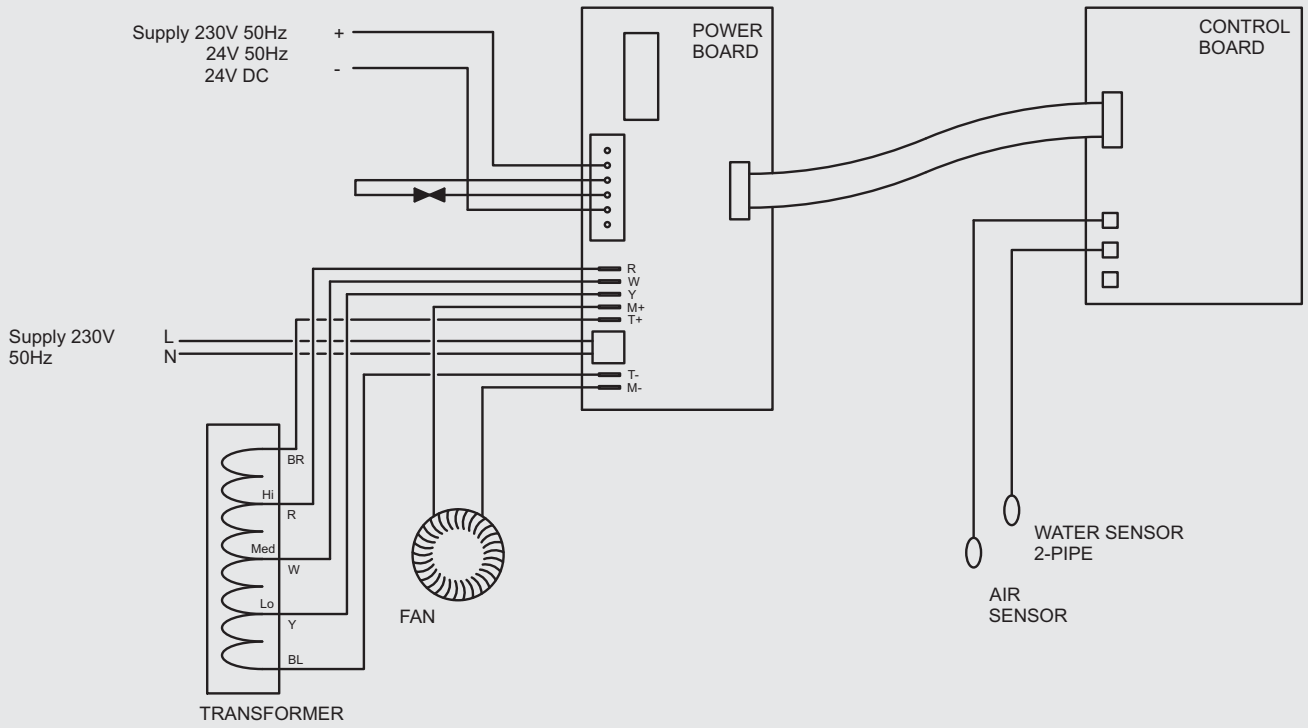
After making the electrical connections replace the side cover to the control box.

9.0 Electrical Connection (continued...)

2-pipe 0 valve

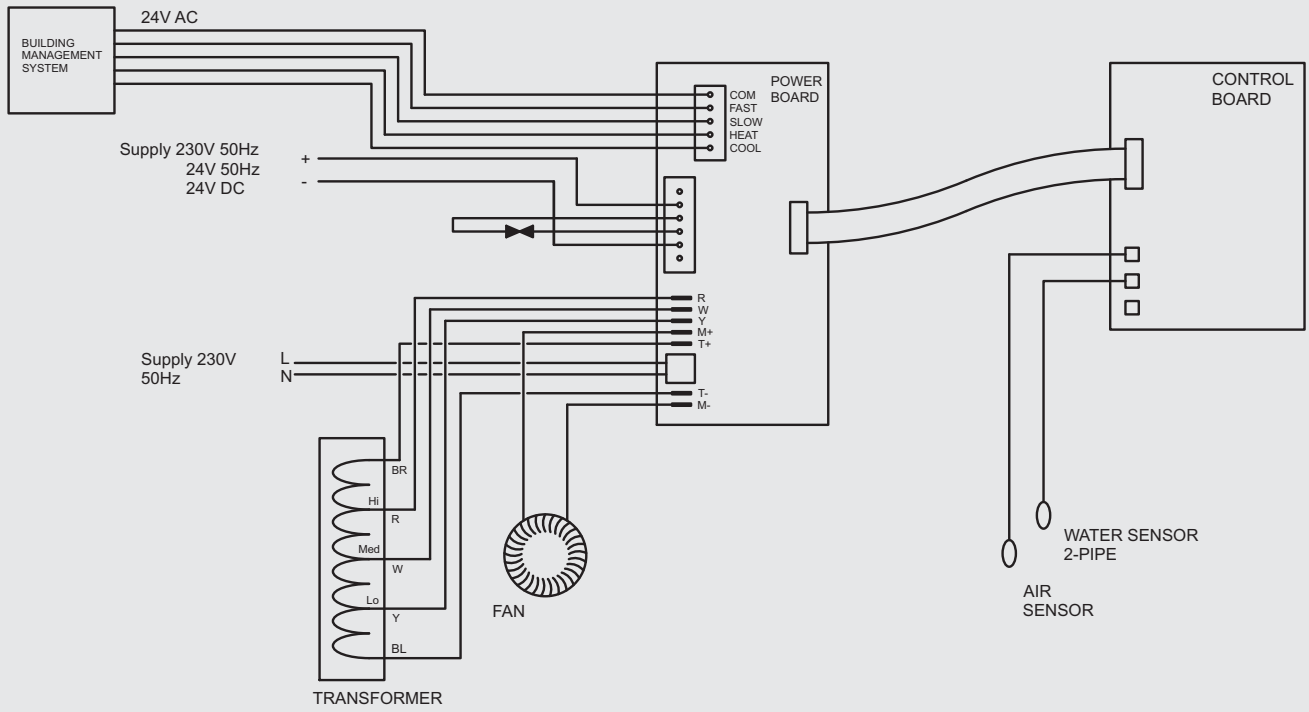


2-pipe 1 valve

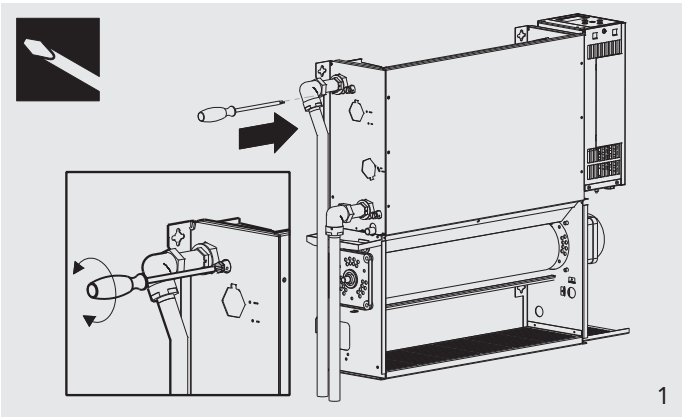


9.0 Electrical Connection (continued...)

2-pipe 1 valve + BMS



10.0 Commissioning Procedure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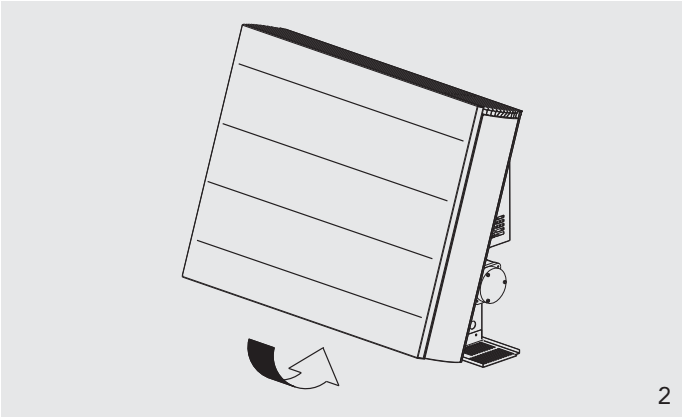
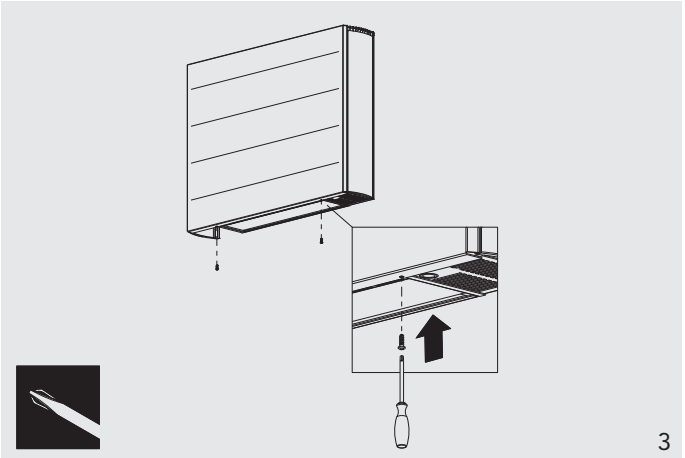

2

1. ● Fill and vent the system.
   - ● Open all valves fully and vent air from the heat exchanger.
   - ● Check for leaks at pipe connections.
2. ● Refit the outer casing and secure with the 2 screws.
   - ● Switch on the electrical supply.
   - ● Check the operation of the unit by following the operating instructions.
3. ● Set up the installation parameters on the controls system as necessary.
   - ● When installation and commissioning are complete, hand over the instruction manual to the end user.


3

11.0 Technical Data

Dimensions

Model	Nominal Height (mm)	Depth (mm)	Length (mm)
iV60x080	600	153	800
iV60x100	600	153	1000
iV60x120	600	153	1200
iV60x140	600	153	1400
iV60x160	600	153	1600

Weight, Water Content and Motor Power

Model	Motor Power (w)	Water Content (l)	Unpacked Weight (kg)
iV60x080	32	0.66	22.8
iV60x100	35	0.92	27.7
iV60x120	45	1.19	32.5
iV60x140	53	1.45	37.5
iV60x160	65	1.72	42.6

Performance Data

Model	Fan Speed	Heating (watts)		Cooling (watts)	
		ΔT50 (75-65-20)	ΔT20 (45-35-20)	Condition 7-12-27	
				Total	Sensible
iV60x080	Normal	1824	704	707	527
	Medium	2556	935	1126	829
	Boost	3682	1358	1648	1227
iV60x100	Normal	2606	905	1011	753
	Medium	3632	1283	1600	1178
	Boost	5149	1883	2304	1716
iV60x120	Normal	3224	1086	1250	931
	Medium	4448	1804	1960	1442
	Boost	6521	2376	2918	2173
iV60x140	Normal	3842	1267	1490	1110
	Medium	5265	2324	2320	1707
	Boost	7894	2869	3533	2631
iV60x160	Normal	4460	1448	1729	1288
	Medium	6082	2845	2679	1972
	Boost	9266	3363	4147	3088

* For BTUs multiply Watts by 3.412.

Relative Humidity: Sensible cooling at 50%.

Noise Levels

Model	Sound Power LwA (dB)			Sound Pressure (dBA)		
	Normal	Medium	Boost	Normal	Medium	Boost
iV60x080	31.9	44.8	55	24.8	37.7	47.9
iV60x100	34.1	42.9	55	27	35.8	47.9
iV60x120	31.1	44.7	58.8	24	40.5	51.7
iV60x140	32	42.6	61.9	24.9	35.5	54.8
iV60x160	34.1	42.1	63.4	27	35	56.3

Noise levels tested in accordance with ISO 3741.

Electrical Data

All **iVECTOR** models require an electrical supply of 220-240V – 50Hz fused at 3A.

The iVECTOR should be sized based on "normal" outputs.

12.0 Control System Set-up and Operating Instruction

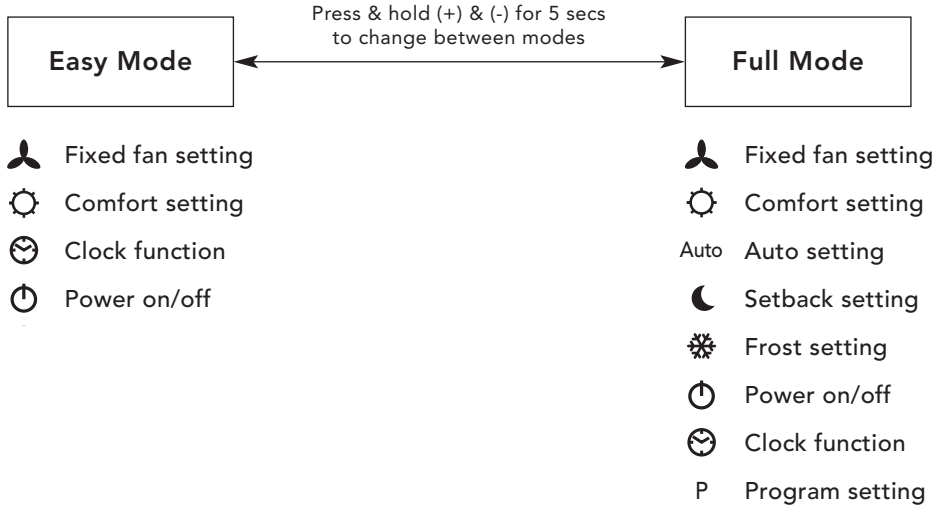
General Description

The electronic control system on this unit provides a wide range of options that can be selected according to system complexity and operating requirements.

The unit is factory set to 'Easy mode' giving thermostatic temperature control, fan only option and clock function.

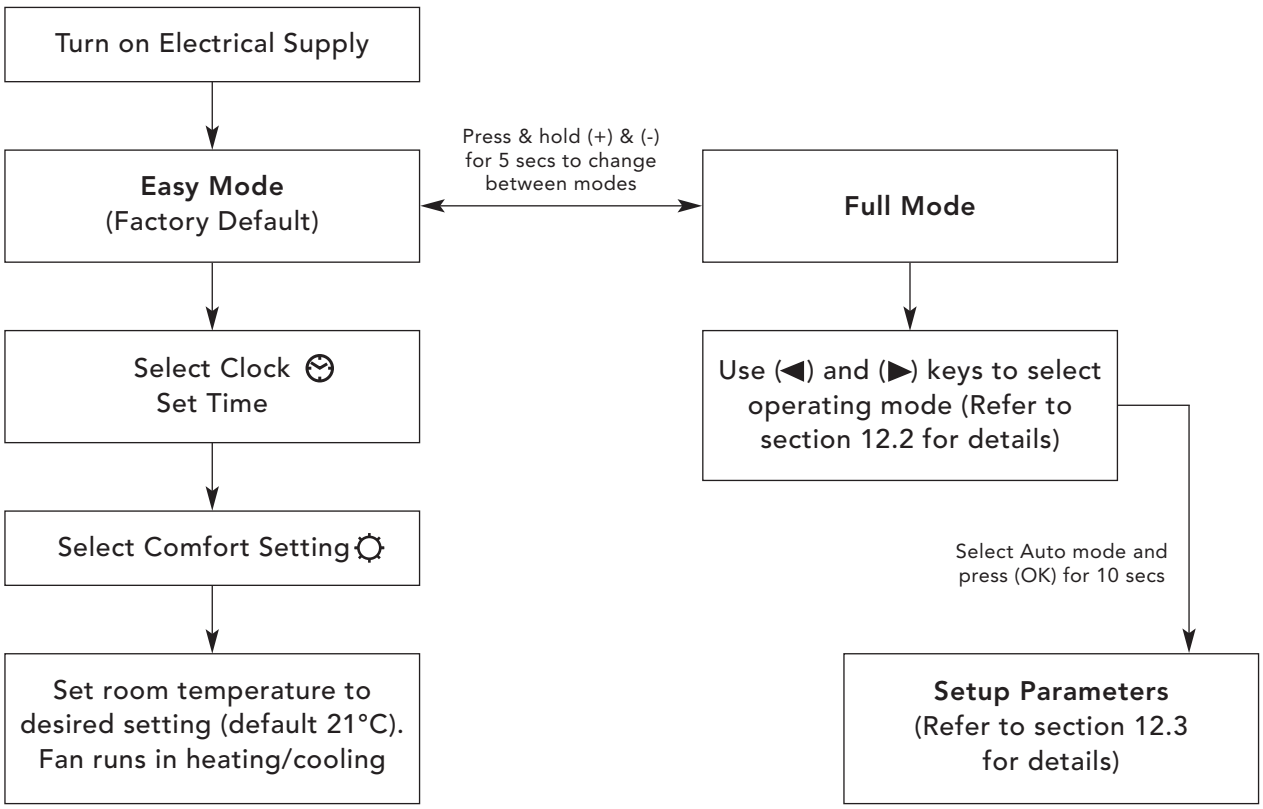
Additional functions are available if necessary from the Full operating mode menu.

A range of additional parameters and features can be changed or activated in a further set up menu should these be required.



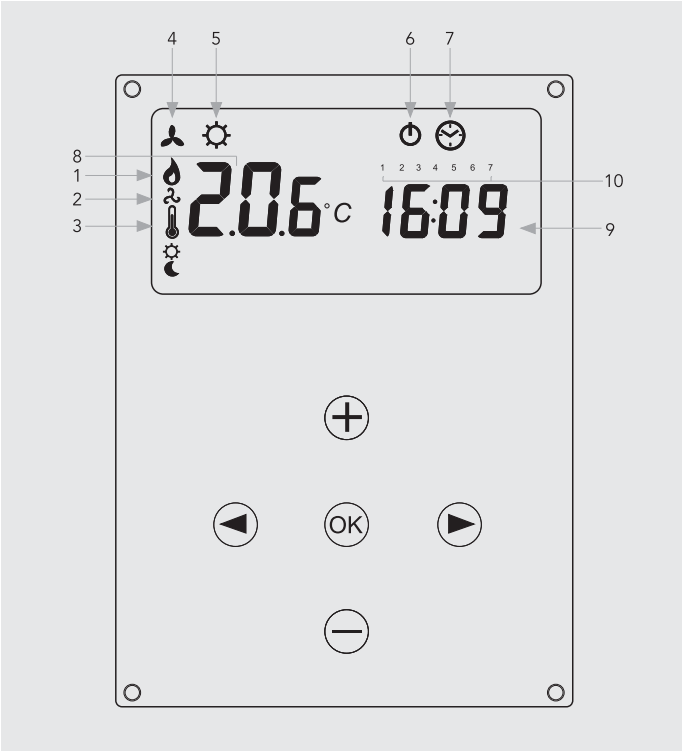
12.1 Unit Operation

Use (◀) and (▶) keys to choose from the operating modes described in section 12.2. A function is selected when the relevant icon is highlighted by □.


Turn on Electrical Supply
Easy Mode (Factory Default)
Press & hold (+) & (-) for 5 secs to change between modes
Full Mode
Select Clock Set Time
Use (◀) and (▶) keys to select operating mode (Refer to section 12.2 for details)
Select Comfort Setting
Select Auto mode and press (OK) for 10 secs
Set room temperature to desired setting (default 21°C). Fan runs in heating/cooling
Setup Parameters (Refer to section 12.3 for details)

12.1 Unit Operation (continued...)

Easy Mode Display



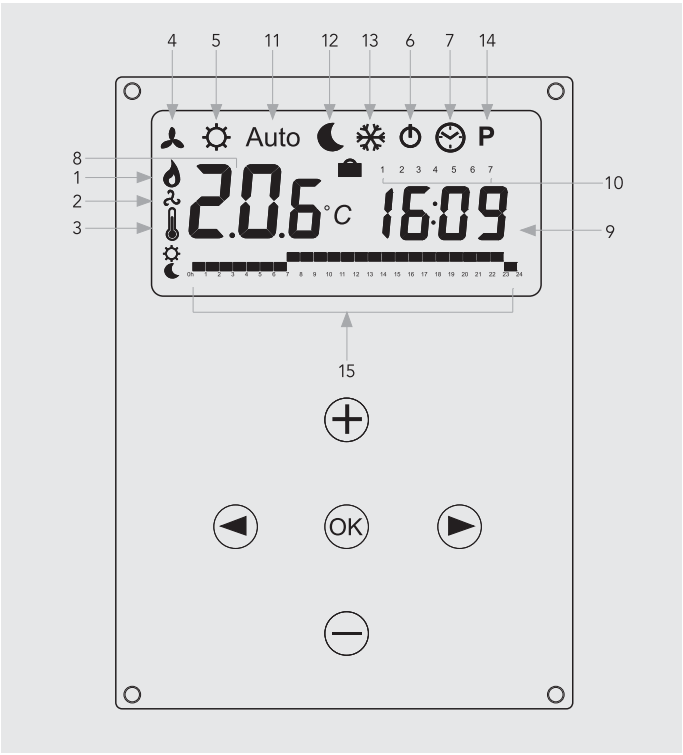
1. Heating indicator
2. Cooling indicator
3. Temperature symbol – when this is displayed the current room temperature is displayed
4. Fan speed symbol (fan blades will rotate when active)
5. Comfort setting
6. Power (on/off)
7. Clock setting
8. Room temperature
9. Time
10. Day of the week

Keys:

OK Validation key (OK)
\+ Plus key (up)
\- Minus key (down)
◄ Navigation left
► Navigation right

Full Mode Display

The full control display can be accessed by pressing the (+) and (-) buttons for 5 seconds. This action can be repeated to revert back to 'Easy mode'.



1. Heating indicator
2. Cooling indicator
3. Temperature symbol – when this is displayed the current room temperature is displayed
4. Fan speed symbol (fan blades will rotate when active)
5. Comfort setting
6. Power (on/off)
7. Clock setting
8. Room temperature
9. Time
10. Day of the week
11. Auto setting (to follow set programme)
12. Night set-back setting
13. Holiday setting
14. Program menu
15. Program schedule

Keys:

OK Validation key (OK)
\+ Plus key (up)
\- Minus key (down)
◄ Navigation left
► Navigation right

12.2 Operating Modes

Use (◀) and (▶) keys to choose from the following parameters.
A function is selected when the icon is surrounded by □.

Function	Description	Adjustment	Availability	
			Easy	Full
	Control Operation Setup The unit must be programed for operation in heating only, cooling only or heating and cooling.	**Control Operation Setup** Scroll to the Fixed Fan mode, and then press on the (◀) key. Use (+) or (-) keys to choose from the following: **Nod (Mode) HOt** for heating. **Nod (Mode) COLd** for cooling. **Nod (Mode) AUtO** for heating and cooling. Press (OK) to confirm.	No	Yes
	Fixed Fan Setting F1, F2, F3 gives fan speed 1,2 or 3 respectively with no temperature control. A1, A2, A3 gives fan speed 1,2 or 3 respectively in heating only if the water temperature ≥32°C.	Use (+) or (-) to select and press (OK) to confirm. (Note the fan speed symbol will only appear when the fan is running).	Yes	Yes
	Comfort Setting Provides room temperature control with automatic fan speed adjustment according to difference between actual and set temperature. The fan operates when water ≥32°C in heating or ≤15°C cooling.	Press (OK) to view the set temperature. Use (+) or (-) to adjust the required room temperature. Default setting is 21°C in Heating.	Yes	Yes
Auto	**Automatic Setting** The unit will run according to one of the 9 preset timed programs, or one of the 4 user defined programs.	See section 12.5 for program options and setup. Press (OK) to view the actual set temperature (Comfort or Set-back).	No	Yes
	Night Set-back Setting Provides room temperature control with automatic fan speed adjustment according to difference between actual and night set-back temperature.	Press (OK) to view the set temperature. Use (+) or (-) to adjust the required room temperature. Default setting is 19°C in Heating.	No	Yes
	Holiday Function Provides frost protection or overheat protection during periods of absence (holiday). The control will count down the time to "00" after which control is resumed in Auto setting. For frost protection the set temperature is 7°C. For overheat the set temperature is 30°C.	Select and is displayed. Use the (+) and (-) to adjust the duration. (In hours "H" if below 24H and then in days "d"). Use the (-) key to interrupt this period and adjust the duration on "no".	No	Yes
	Power On/Off Turns unit on/off.	Press (OK) to turn the power on or off.	Yes	Yes
	Set Clock Menu Displays time in 12h or 24h format.	Press (OK) Use the (+) and (-) keys to set the minutes. Press (OK) Use the (+) and (-) keys to set the hours. Press (OK) Use the (+) and (-) to set the days. Press (OK).	Yes	Yes
P	**Program Menu** Provides choice from 9 pre-programed and 4 user defined timed programs.	See section 12.5 for full details.	No	Yes

12.3 Installer's Set-up Parameters

The various parameters that can be defined by the installer are shown in the table below.

To access the installation parameters menu, scroll to **AUTO**, then press **(OK)** for 10s.

Use **(◀)** and **(▶)** keys to highlight the parameter to be adjusted.

Press **(OK)** to toggle the parameter setting or edit the value. If the value starts to blink, use **(+)** and **(-)** keys to adjust the value. When the value is adjusted to the desired setting, press **(OK)** to confirm.

Once parameters are set, go to **<End>** parameter and press **(OK)** to go back to the main menu.

Parameter Name	Description	Default Setting	Alternative Setting
dEG	Select temperature scale.	°C	°F
00:00	Select the hour format.	24H	12H
AIr (Air)	Calibration of the internal air sensor against the actual room temperature. (The calibration must be done after 12 hours working at the same set temperature).	To adjust the air sensor temperature, enter the measured temperature using the (-) or (+) keys. To confirm the calibration, press (ok) Press (+) and (-) keys at the same time to reset the offset value.	
AiPu	Fan pulse will switch on the fan for 30 seconds every 5 minutes. This will draw air over the air sensor if unit is mounted where air circulation is restricted.	YE5 (Yes)	NO (No)
Nb vAL (2 Pipe models only)	Selection of the number of valves to be driven. This parameter depends on the system design.	0 valve	1 valve
FAS SPEE	Allows the maximum fan speed to be switched off - the unit will only run in Low and Medium speeds.	FA5 For Fast	NEd For Medium
SetU	Select whether control is from the internal controls system or from external BMS.	AUt (Auto)	bN5 (For BMS)
NIGt	Select option for fan speeds when the unit reverts to night set back in cooling operation.	NOr (For Normal regulation)	AL1 (Fan speed 1 only)
CLr ALL	Reverts the control back to factory settings.	Press (OK) for 5 seconds	
End	Exit the installation menu.	Press (OK)	

12.4 Building Management System Input Set-up

If the unit is integrated into a Building Management System, control of the unit will be by BMS input only. The BMS alternative setting from the parameters menu must be selected. On the main screen the AUTO symbol will be turned off.

P1: Low fan speed input: P1 is indicated where the Room temperature / set temperature is shown normally.
F1 is ON

P2: High fan speed input: P2 is indicated where the Room temperature / set temperature is shown normally.
F3 is ON

P3: WINT MODE: Winter mode is used for system regulation. Heating indicator flashes in this mode.

P4: SUMM MODE: Summer mode is used for system regulation. Heating indicator flashes in this mode.

If the BMS inputs are wrong (e.g. P1 + P2 or P3 + P4), a message **ERR BMS** will flash and the system stops BMS control.

12.5 Program Mode

P Program Menu

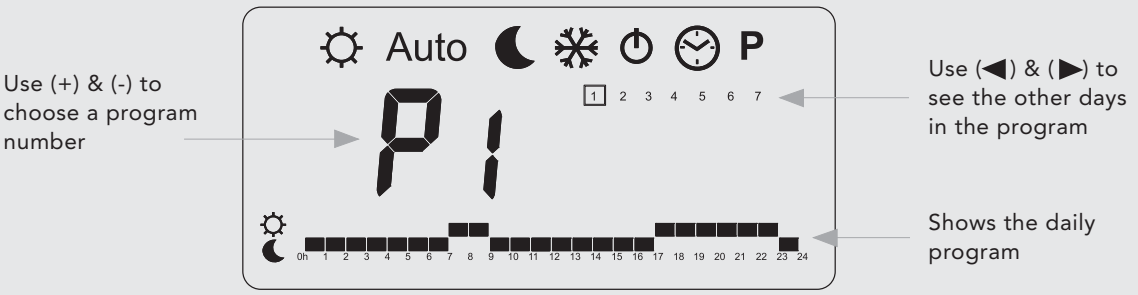
A quantity of 9 built-in (P1 - P9) and 4 user defined (U1 - U9) timed program options are available to choose from. Each day is divided into 24 one hour periods operating in either Comfort setting (21°C default) or Night set-back setting (19°C default).

Use the (+) and (-) keys to scroll through the program options.

1. Built-in Program Selection

Scroll to the preferred program number P1 to P9 - the number will flash. Press (OK) to confirm.

Scroll back to Auto setting to activate the selected program.

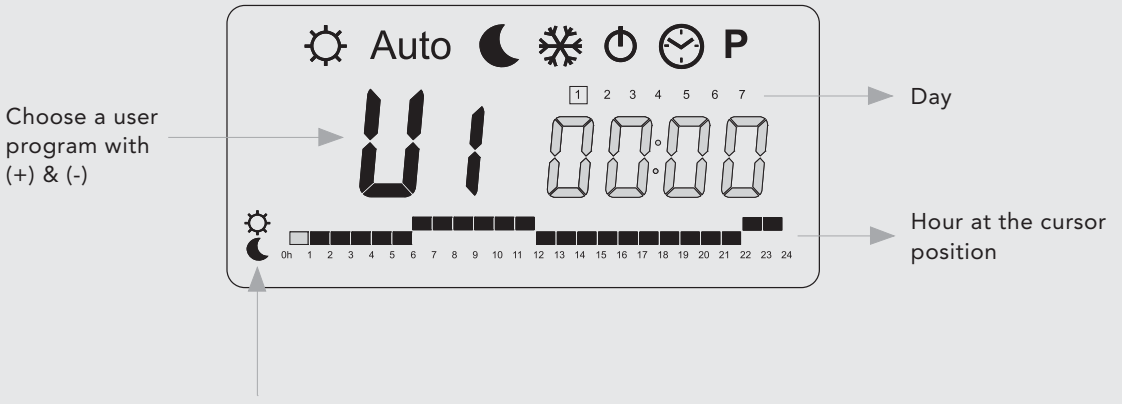

Use (+) & (-) to choose a program number
Auto
P
1 2 3 4 5 6 7
P1
0h 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Use (◀) & (▶) to see the other days in the program
Shows the daily program

Built-in programs description

P1 Morning, Evening & Weekend
P2 Morning, Afternoon, Evening & Weekend
P3 Day & Weekend
P4 Evening & Weekend
P5 Morning, Evening (Bathroom)
P6 Morning, Afternoon & Weekend
P7 7h - 19h (Office)
P8 8h - 19h, Saturday (Shop)
P9 Weekend (Secondary House)

2. User Program Menu

Select U1 to U4 and press (OK) to enter a user defined program.


Choose a user program with (+) & (-)
Auto
P
1 2 3 4 5 6 7
U1
0h 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Day
Hour at the cursor position

The (+) key sets ☼ temperature at each flashing program hour
The (-) key sets ☾ temperature at each flashing program hour

Use (◀) or (▶) keys to move the flashing cursor position to the required day and modify the program.
When the displayed day is correct, press (OK) to jump and copy the program of that day to the following day. Press (OK) on day "7", to finish and validate the program.
The user-defined program will be followed in Auto operating mode.

13.0 Troubleshooting

Please follow the troubleshooting guide below before calling for assistance. It is important to make sure that an apparent problem with this unit is not the result of system controls being incorrectly set, that there is no electrical supply to the unit or that the unit is incorrectly set.

Problem	Possible Causes	Remedy
Heating Mode/ Cooling Mode - No Fan	Electrical supply switched off	Switch on supply
	Fuse blown	Replace fuse
	Unit switched off	Switch unit on at LCD display
	Temperature set point reached	Increase temperature set point
	Water temperature reaching fan convector below 32°C in heating or above 15°C in cooling	Check boiler, heat pump or equivalent Programer ON Boiler/Heat pump on and set to correct setting Pump running **Note:** Operation of fan convector can be checked by switching to manual fan setting
Poor heating performance/ unit cycling on water sensor	Low water temperature to unit	Turn up water temperature at boiler or heat pump
	Poor water flow	Vent air from heating system

If the fan convector is still faulty after checking the above, call your installer or MYSON Service.

Possible Installation Faults

Poor heating or cooling performance from this unit could be the result of one or more of the following factors which should have been taken into consideration at the installation stage.

- Unit incorrectly sized against the room heat loss.
- Lack of water flow
  - Incorrect pipe size to unit
  - Valves not fully open
  - System incorrectly balanced
  - Pump set too low
- Boiler or heat pump controls set too low.

System Diagnostic

A system diagnostic tool has been built into the control system of this unit which enables testing of all the input and output functions from the control.

Select AUTO setting in the user menu then press “Down” for 5 seconds.

Use the left and right arrows to scroll through the inputs /outputs from relays, air sensor, water sensors, BMS inputs, and screen to check as necessary.

Note: The control will revert back to the main menu after 1 minute if no buttons are pressed.

14.0 Maintenance

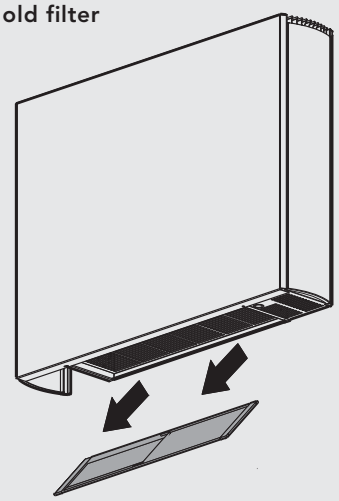
Disconnect from the power supply before carrying out maintenance work.

Maintenance should be restricted to occasional removal of dust and lint around the unit. The outer surface may be wiped over with warm water and mild detergent taking care to avoid water entering the grille areas.

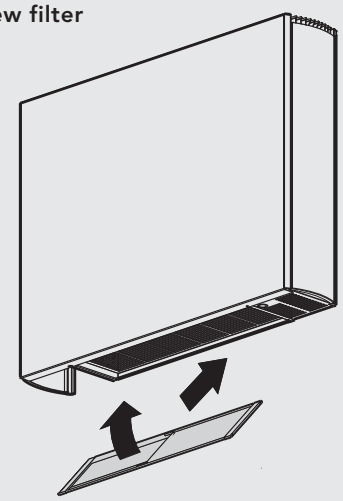
Replacing the filter

Periodically the filter will need to be cleaned, and the control system on this product will display 'FILT' when it is time for the filter to be checked. Filters can be easily removed for cleaning as shown below. See spare parts list section if replacement filters are needed.

Remove the old filter



Place the new filter



15.0 Spare Parts & Accessories

Filters

Part No	Size (mm)	iV080	iV100	iV120	iV140	iV160
1290027	495	1		1		1
1290028	695		1		1	
1290029	400			1	1	2

Accessories

Description	Technical Information	Part No
System Valve	Pressure independent balancing and control valve with 230V actuator	ACC 01
Condensate pump kit	230V Condensate pump kit including mounting brackets, float switch, and 2m flexible tube for condensate removal.	ACC 02

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T: 0845 402 3434, F: 0191 491 7568, sales@myson.co.uk, www.myson.co.uk

After Sales Service:

MYSON Service, Somerden Road, Hull, East Yorkshire HU9 5PE
T: 01482 713927, F: 01482 789056, service.convectors@myson.co.uk

Spare parts and technical help on all Convector products are available from MYSON Service.

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